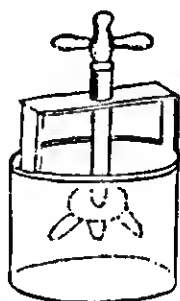


ABOUT WASHING-MACHINES.

Most people know something about the trouble and discomfort of a great family wash, and many would be thankful for any not over-troublesome means of getting rid of these annoyances. To stand all day at the wash-tub is not only very hard work, but, unless the wash-house be well ventilated, it is also very unhealthy work. The hot steam arising from foul linen, and the humid atmosphere, are always more or less injurious to those who breathe them. For these reasons, many attempts have been made to contrive machines which should diminish the labor and inconvenience; some answer pretty well, others are altogether failures. In fact, a thoroughly serviceable and cheap washing-machine is a thing not yet invented, and if any of our readers can set their wits to work and contrive some suitable apparatus, we will undertake to publish an account of it. Meanwhile, we here give such particulars as are known on the subject, which may serve to inform those who are able to make washing-machines, and those who only wish to use them.

Fig. 1.



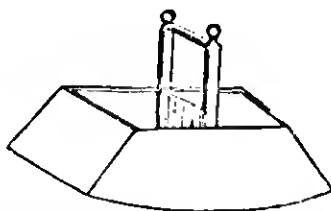
More of these machines have been invented in the United States than elsewhere. The simplest form

is what is called a "washboard," which is well known to our readers.

Another washing-apparatus is the *Dolly*, which is greatly used in the northern counties of England; it is shown in Fig. 2. By working it up and down, after the manner of a churn, the clothes are pounded and rubbed, and the dirt loosened, so that the labor of finishing them afterwards by hand is greatly diminished. In most cases, the *Dolly* or plunger is used without the crosspiece, and is worked about in the cask or tub among the clothes as may best suit the ability or inclination of those who use it. Some people employ a big heavy wooden pestle, and thump the linen until the worst of the dirt is driven out. In Scotland, it is not unusual to see women treading out the dirt from a tubful of clothes with their feet, or beating them with a mallet upon a flat stone, at the edge of a river. A similar practice prevails in France and other countries.

The next out, Fig. 2, represents a machine of a

Fig. 2.



more complicated construction, but still simple enough for general use. It is a box or tray, with a curved bottom, with a beater hung in the centre moving on pivots, and worked by means of the two arms connected with the crosspiece at the top. The lower part of the beater is a frame of straight wooden bars, which, when pushed backwards and

forwards, strikes against the clothes placed on either side of it, and allows the water and soapsuds to pass through. The lower edge of this beater should be about one inch from the bottom of the tray, and the bottom is curved to suit the position of the heater at whatever angle it will be placed. It would of course be easy to fit two straight pieces under this bottom, to make it stand steady, if required.

Some machines are contrived to move two beaters by turning a handle, attached to a spindle, for producing an alternate backward and forward motion. One recently patented is described as "a chamber, or tub, with a narrow neck, in which a plunger is inserted, passing through the narrow neck, and, pressing forcibly on the water confined within, drives it violently through the body of the clothes, carrying the dirt with it." All these various attempts to produce a serviceable washing-machine only serve to show how much such an article is needed.

In some respects, washing by steam is the best and easiest method of washing clothes. It has been practised for many years in France, and with great success. The process is not difficult, and is thus described: "The clothes are first soaked in a lye of potash, and then hung in a large vessel kept full of steam by a pipe communicating with a boiler. This vessel for the clothes must be steam-tight, and, on a small scale, a large cask will answer. After remaining a certain time in the steam, generally half an hour, the dirt becomes loosened, and little labor in a subsequent washing is sufficient to remove it by washing with soap. The saving of fuel and labor is thus very great, and the linen is rendered extremely white."

The authority here quoted states that "blankets are washed by these means in Paris for a farthing a pair, and that the method has been tried in London with perfect success. It will, however, only answer for white articles, for the action of the steam is so powerful as to discharge the color of dyed things. It is likewise necessary to observe that the linen should be suspended in the steam-vessel in such a manner that it shall not come into contact with the suds that drain from it, which, in this case, would produce a bad color, difficult to wash out. Also, it is essential that no part of the apparatus be made of iron, or the linen will be rusted by coming into contact with it. A large copper teakettle will produce steam enough for a moderate washing; and, to fill with steam the vessel in which the clothes are put, it is necessary to leave an aperture open at first, by which the common air may be driven out as the steam enters, and which should be shut as soon as the vessel is full of steam; for it is to be observed that the vessel cannot be filled with steam while at the same time it remains full of air; the latter must be driven out that the steam may occupy the place."

The wringing of clothes is a very laborious opera-

tion where there is much of it to be done, and there are several contrivances for the diminishing of this labor; in bleaching, dyeing, and some other establishments, they are employed on a very large scale. The simplest way is to have a short wooden bar firmly fixed upright, over which the article may be looped and wrung with both hands; another way is to have a long stout canvas bag in which the things are placed, and this is twisted by being attached to a hook at one end of a bench, while the other is held in a clamp made to move round and round by means of four arms or levers placed crosswise. Another method is that which was shown some time ago at the Polytechnic Institute in London, which may be roughly described as a box about three feet long and one foot square, hinged on pivots, and made to rotate in the direction of its length with extreme velocity by means of a winch. The ends of the box consisted of a few wires crossing each other at right angles. Thick pieces of a blanket being put in thoroughly soaked, and without wringing, the box was made to whirl, the water flew off through the open ends, and in less than a minute the thick woollen substance was so dry that very little airing would be necessary afterwards.

It must always be remembered that much of the success of washing depends on the proper preparation of the lye or liquor. The following is a good preparation: "Put common pearl ash in a stone jar, with five or six times its weight of water; let it stand till it is quite dissolved, and add as much weight of fresh-slaked lime as that of the pearl ash; stir this mixture frequently for several days, and let it stand to settle; then pour off the clear liquor, and keep it in a stone bottle well corked. A small quantity of this caustic solution will be more effective than soap for particular purposes; and it is to be observed that alkali may be employed without danger to some articles that would be too strong for the washerwoman's hands."